

sDiv working group meeting summary

“sOcioLock-in - Understanding the undesirable resilience in socio-ecological systems driving biodiversity loss”

1st meeting summary

Intensive food production systems are rapidly expanding around the globe and driving a loss of biodiversity. Despite efforts to address the negative impacts of these systems and transition them to more sustainable states, they appear highly resistant. The aim of our SDiv working group has been to take an interdisciplinary systems perspective to identify mechanisms that ‘lock-in’ food systems to states which drive biodiversity declines. We are investigating combinations of solutions that are more likely to be successful in ‘tipping’ systems to more sustainable states.

We began the workshop by Tom Oliver outlining the motivation for the working group- namely that, ‘undesirable resilience’ is very understudied relative to resilience as a positive normative attribute, yet it is a critical aspect in enabling transformations in socioecological systems. For example, in food systems undesirable resilience is apparent in invasive species, diseases, rural poverty traps, biodiversity loss and greenhouse gas emissions. The common mechanisms promoting undesirable resilience have not yet been synthesised across academic disciplines. In particular, some mechanisms that promote undesirable resilience (be they social or biophysical aspects), are under appreciated in certain disciplines. This means that cost-effective levers to transition the systems to more sustainable states are effectively being ignored.

Oliver outlined the a common vision for the working group - *To take a strategic transdisciplinary approach, building on the existing body of knowledge, to examine undesirable resilience and enable transformations in rural/urban food systems, along with some (SMART) goals. These related to 1) delivering a conceptual paper on aspects of undesirable resilience across disciplines, 2) an empirical paper on food system lock in mechanisms, and 3) delivering impact by addressing policy needs with regards to enabling food system transformation to reduce environmental impacts. Interestingly, during the course of the workshop these goals were revised, specifically, a slightly different focus was chosen for the empirical paper. The agenda for the workshop was then discussed in detail.*

In the afternoon of Day 1, participants introduced themselves, with short statements about their reason for attending what they wanted to get out of the workshop and for the working group as a whole to deliver. They also

mentioned an unusual hobby or activity that they like to pursue! Selected participants then gave talks, chosen in advance, to outline a range of ecological and social-science approaches to the research area.

These afternoon talks were:

Mike Asquith (European Environment Agency): *Resilience and transformations: reflections for policy and governance*

Kimberley Nicholas (LUCSUS, Lund) *Beyond beef and Cabernet Sauvignon: Breaking undesirable food system lock-ins*

Ralf Seppelt – (UFZ, Germany) *Undesirable resilience on a farm – or, how to avoid the intensification trap?*

Rachel Standish (Murdoch University, Australia)- *Unhelpful resilience in ecological systems*

Lutta Muhammed (Kenya Agricultural & Livestock Research Organization)- *Undesirable resilience in African food systems*

One additional participant, Lutta Muhammed, hadn't been able to make the workshop in person and gave his presentation over Skype on the final day.

On Day 2, we focused in the morning on the conceptual paper. To stimulate thinking, a joint presentation was given by Emily Boyd and Wiebren Boonstra on undesirable resilience from a social science/community perspective and socioecological traps. This was then followed by a productive brainstorming session on the potential for a paper. We did not resolve how the output would be delivered, but that was not the aim. The plan was to initially broach this topic and then let it 'simmer' throughout the working group (e.g. accompanied by further discussions over dinner and lunch) before we returned to it on the final day.

In the afternoon, we tackled the development of output 2- the empirical paper. Andre Dornelles, a PhD student at University of Reading, gave a short talk summarising datasets on three countries that might be used as case studies: UK, Ghana, Kenya, Brazil. Before the workshop, we had expected that the working group might develop a survey in order to explore differences in potential 'lock-in' mechanisms between three case study regions. However, when we split into break out groups we decided that an alternative empirical study focusing on existing food system dynamics would be much more useful. The new aim would be to look at food system transformations across different countries as a first step in describing the existing dynamics of these socio-ecological systems.

We returned to this topic on the morning of Day 3, changing the composition of the groups. One group worked on the developing empirical paper, whilst a second group returned to the conceptual paper. In a feedback session, the groups joined together again to discuss the ideas that had arisen from each group individually.

On the morning of Day 4, we then developed a consensus on the outputs along with a timeframe on how and when they would be delivered. For each output, smaller groups would be included in an 'inner circle' of idea development before circulating outputs to the wider working group for comment by email. The outputs would then be further refined at the second workshop. On the afternoon of Day 4, we also revisited the topic of impact to discuss whether the workshop outputs were on track to address needs for policy, along with a discussion of future funding possibilities.

There was an excellent constructive atmosphere during the working group and, even though participants came from very different disciplines (e.g. from political economy and development to ecology) we were able to speak a common language, aided in part by careful selection of participants that were already 'leaning towards' interdisciplinarity and known to be good 'team players', along with the background material disseminated before the workshop.

The sDiv team were very helpful with regards to logistics (e.g., computer support, restaurant bookings, reimbursement protocols) and were always available and professional.